

Application No. 09/726,027
Reply to Office Action mailed July 30, 2004

Patent
Attorney Docket No. 85773-475
(formerly 12728ROUS01U)

II. REMARKS/ARGUMENTS

The application now contains 31 claims, numbered 1-24, 26, 29, 32, 33 and 38-40. Claims 1, 9, 10, 18, 26, 29, 32, 33 and 38-40 are pending in the application, claims 2-8, 11-17 and 19-24 having been withdrawn from consideration.¹

Claims 25, 27, 28, 30, 31 and 34-37 have been cancelled.

Claims 1, 9, 10, 18, 26, 29, 32 and 33 have been amended in order to clarify the subject matter being claimed in those claims. Also, claims 26, 29, 32 and 33 have been amended to make these claims dependent on claim 1 in view of the cancellation of claim 25 from the application.

New dependent claims 38-40 has been added to the application. Support for these dependent claims can be found, *inter alia*, on page 6, lines 17-25 of the specification and Figures 2 and 3, as originally filed.

It is respectfully submitted that no new matter has been added to the application under the present response.

A. Summary of Rejections and Reply

1) Rejection of claims 1, 9, 25 and 26 under 35 USC 103

On page 2 of the Office Action, the Examiner has rejected claims 1, 9, 25 and 26 under 35 USC 103(a) as being unpatentable over Shiragaki U.S. Patent No. 5,457,556 (hereinafter referred to as "Shiragaki") in view of Kashima U.S. Patent No. 6,317,529 (hereinafter referred to as "Kashima").

¹ It is noted that, on page 1 of the Office Action, claims 1, 9, 10, 18 and 25-37 are indicated as pending but that none of these claims are indicated as being withdrawn from consideration.

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Firstly, the rejection of claim 25 is moot in view of the cancellation of that claim from the present application.

Secondly, as described below, the Applicants respectfully submit that claims 1, 9 and 26 are in condition for allowance.

Independent claim 1

The Examiner's attention is directed to the following features of amended claim 1, portions of which have been emphasized:

- "1. A protection switching arrangement for optical switching systems, comprising:
- a plurality of optical switching matrices, each one the optical switching matrices having a plurality of inputs and a plurality of outputs and being operative to switch optical channel signals from any one of the inputs to any one of the outputs;
 - a plurality of wavelength division demultiplexers, each one of the wavelength division demultiplexers having a plurality of outputs each coupled to one of the inputs of a respective one of the optical switching matrices, each one of the wavelength division demultiplexers having an input and being operative for dividing a composite optical signal at its input into optical channel signals and providing each optical channel signal to a respective one of the optical switching matrices;
 - a spare wavelength division demultiplexer having a plurality of outputs each coupled to one of the inputs of a respective one of the optical switching matrices, the spare wavelength division demultiplexer having an input and being operative for dividing a composite optical signal at its input into optical channel signals and providing each optical channel signal to a respective one of the optical switching matrices; and
 - an optical protection switch having a plurality of inputs, a plurality of straight-through outputs, and a protection output, the optical protection switch being coupled at each of its straight-through outputs to the input of a respective one of the wavelength division demultiplexers and coupled at its protection output to the input of the spare wavelength division demultiplexer."

It is respectfully submitted that Shiragaki in view of Kashima does not render obvious the features of claim 1.

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To begin with, as conceded by the Examiner on page 3 of the Office Action, Shiragaki fails to disclose "a plurality of optical switching matrices". It is thus not surprising that Shiragaki also fails to disclose the various connections between the plurality of optical switching matrices and the other components of the claimed protection switching arrangement, as recited in claim 1.

Now, to address the deficiencies of Shirigaki in terms of a plurality of optical switching matrices, the Examiner has applied Kashima. The Examiner stated that Kashima "teaches a plurality of optical switching matrices [and that, t]herefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the plurality of optical switching matrices as taught by Kashima in the system of Shirigaki." The Examiner further stated that "[o]ne of ordinary skill in the art would have been motivated to this since Kashima suggests in column 3, lines 5-67 and col. 4, lines 1-67, and abstract section that using such the plurality of optical switching matrices have advantage of allowing providing a optical switch for switching rapidly a plurality of signals with low signal loss [*sic*]."

It is respectfully submitted that the Examiner's statements are erroneous and serve as an incorrect basis for combining Shiragaki and Kashima and rejecting claim 1 based on that combination.

Specifically, the Manual of Patent Examining Procedure states that, in order to establish a *prima facie* case of obviousness, three basic criteria must be met:

- (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
- (2) there must be a reasonable expectation of success; and
- (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations.

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The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

It is respectfully submitted that the first criterion for establishing a *prima facie* case of obviousness, namely the presence of a suggestion or motivation to modify the reference or to combine the reference teachings, has not been satisfied.

Specifically, nowhere in Shiragaki or in Kashima is there a suggestion or motivation to combine and modify the references as suggested by the Examiner. More particularly, it is abundantly clear that Shiragaki solely discloses an optical space switch and provides no suggestion or motivation of replacing that optical space switch with a plurality of optical switching matrices. For its part, Kashima is totally unconcerned with local recovery from failures at the optical cross-connect apparatus described therein. It is thus not surprising that Kashima provides no suggestion or motivation of incorporating the optical cross-connect apparatus described therein into a system, such as Shiragaki's system, for local recovery from failures at an optical cross-connect.

Therefore, it is respectfully submitted that there is no suggestion or motivation, either in Shiragaki, in Kashima, or in the knowledge generally available to one of ordinary skill in the art, to combine and modify Shiragaki and Kashima as suggested by the Examiner. As held by the Federal Circuit, "[o]bviousness cannot be established by combining teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination" (*In re Geiger*, 815 F.2d 686, 690, 2 USPQ2d 1276, 1279 (Fed. Cir. 1987); *ACS Hospital Systems, Inc. v. Monteffiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)). That is, "[w]hile [the prior art] apparatus may be capable of being modified to run the way [the claimed] apparatus is claimed, there must be a suggestion or motivation in the reference to do so" (emphasis added, *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)).

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For the above reasons, it is respectfully submitted that no *prima facie* case of obviousness has been established in the Office Action. Accordingly, the Applicants respectfully submit that claim 1 is in condition for allowance. The Examiner is thus respectfully requested to withdraw the rejection of claim 1.

Additionally, and notwithstanding the total absence of some suggestion or motivation supporting the combination of the cited references, it is respectfully submitted that no *prima facie* case of obviousness has been established in the Office Action for the following additional reasons. Specifically, it is respectfully submitted that Shiragaki and Kashima are not properly combinable or modifiable as suggested by the Examiner since a combination of Shiragaki and Kashima would destroy the intended function or purpose of the systems described in these references.

Specifically, Shiragaki's system includes a group of inlet ports to which is supplied traffic added from a digital switch that interfaces between the optical space switch of Shiragaki's system and a switched telephone network, as well as a group of outlet ports for supplying traffic to be dropped at the digital switch (see Figure 3 and col. 5, lines 13-23 of Shiragaki -- note that these groups of inlet and outlet ports, although not numbered, are also present in the embodiment shown in Figure 8 of Shiragaki). In contrast to this, Kashima describes an optical cross-connect apparatus having a plurality of optical demultiplexers, an optical switch matrix (made up of a plurality of unit switches) that switches demultiplexed optical signals received from the optical demultiplexers, and a plurality of wavelength converters each receiving a respective optical signal from the optical switch matrix and applying the optical signal to one of a plurality of optical multiplexers (see Figure 1 and col. 3, line 5 to col. 5, line 23 of Kashima).

Clearly, Kashima's optical cross-connect apparatus is not provided with the necessary input and output configuration to receive traffic added from, or send traffic to be dropped at, the digital switch of Shiragaki's system which provides an interface

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between Shirigaki's system and a switched telephone network. It thus goes without saying that one having ordinary skill in the art would not have been provided with any suggestion or motivation to incorporate Kashima's optical cross-connect apparatus into Shirigaki's system since doing so would destroy the intended function of Shirigaki's system, which is in part to provide add/drop functionality at an optical cross-connect.

Therefore, it is respectfully submitted that Shirigaki and Kashima are not properly combinable and modifiable as suggested by the Examiner since such a combination and modification would destroy the intended function or purpose of the systems described in these references. As consistently held by the Federal Circuit, no *prima facie* case of obviousness can be properly made if the combination or modification suggested by the Examiner destroys the intended function or purpose of one or more of the references (see, *inter alia*, *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

For these additional reasons, and notwithstanding the total absence of some suggestion or motivation supporting the combination of the cited references, it is once again respectfully submitted that no *prima facie* case of obviousness has been established in the Office Action. On these additional grounds, the Applicants once again respectfully submit that claim 1 is in condition for allowance. The Examiner is thus once again respectfully requested to withdraw the rejection of claim 1.

Dependent claims 9 and 26

Claims 9 and 26 (as amended) depend directly on claim 1 and therefore include all of the features of claim 1. Hence, for the same reasons as those set forth herein above in respect of claim 1, the Applicants respectfully submit that claims 9 and 26 are in condition for allowance. The Examiner is thus respectfully requested to withdraw the rejection of claims 9 and 26.

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2) Rejection of claims 10, 18 and 27-37 under 35 USC 103

On page 4 of the Office Action, the Examiner has rejected claims 10, 18 and 27-37 under 35 USC 103(a) as being unpatentable over Shiragaki U.S. Patent No. 5,457,556 (hereinafter referred to as "Shiragaki") in view of Kashima U.S. Patent No. 6,317,529 (hereinafter referred to as "Kashima") and further in view of Kuroyanagi U.S. Patent No. 6,433,900 (hereinafter referred to as "Kuroyanagi").

Firstly, the rejection of claims 27, 28, 30, 31 and 34-37 is moot in view of the cancellation of these claims from the present application.

Secondly, as described below, the Applicants respectfully submit that claims 10, 18, 29, 32 and 33 are in condition for allowance.

Dependent claims 10, 18, 29, 32 and 33

As described above in respect of claim 1, Shiragaki in view of Kashima does not render obvious the features of claim 1 for either one or both of the following reasons:

- (1) there is no suggestion or motivation, either in Shiragaki, in Kashima, or in the knowledge generally available to one of ordinary skill in the art, to combine and modify Shiragaki and Kashima as suggested by the Examiner; and
- (2) Shiragaki and Kashima are not properly combinable or modifiable as suggested by the Examiner since the suggested combination of Shiragaki and Kashima would destroy the intended function or purpose of the systems described in these references.

Since claims 10, 18, 29, 32 and 33 depend either directly or indirectly on claim 1 and therefore include all of the features of claim 1, the comments made above in respect of claim 1 also apply to claims 10, 18, 29, 32 and 33.

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Now, it is respectfully submitted that Kuroyanagi also does not provide a suggestion or motivation to combine and modify Shiragaki and Kashima as suggested by the Examiner. Specifically, Kuroyanagi's system is entirely based on redundancy of a 0-system and a 1-system each carrying identical optical signals to effect a protection switching operation (see, *inter alia*, col. 7, lines 38-56; col. 7, line 63 to col. 8, line 9; and col. 16, lines 24-37 and 55-60 of Kuroyanagi). Clearly, therefore, Kuroyanagi's system is totally different structurally, and operates in a completely different manner, than both Shiragaki's and Kashima's systems. It is thus not surprising that Kuroyanagi provides absolutely no suggestion or motivation to combine and modify Shiragaki and Kashima as suggested by the Examiner.

Furthermore, it is respectfully submitted that applying Kuroyanagi does nothing to change the fact that Shiragaki and Kashima are not even properly combinable or modifiable as suggested by the Examiner since that combination would destroy the intended function or purpose of the systems described in these references.

For the above reasons, it is respectfully submitted that, even when applying Kuroyanagi, no *prima facie* case of obviousness in respect of claim 1 has been established in the Office Action. Since claims 10, 18, 29, 32 and 33 depend from claim 1, the Applicants respectfully submit that these claims are in condition for allowance. The Examiner is thus respectfully requested to withdraw the rejection of claims 10, 18, 29, 32 and 33.

Additionally, and notwithstanding the above reasons, it is respectfully submitted that claims 10, 18, 29, 32 and 33 are in condition for allowance for the following additional reasons. Specifically, the Examiner's attention is directed to the following features of amended claims 10 and 29, portions of which have been emphasized:

- "10. A protection switching arrangement as claimed in claim 1, (...) further comprising a **plurality of second optical protection switches**, each one of the second optical protection switches having a **plurality of outputs** each coupled to one of the inputs of a respective one of the optical switching

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matrices and a plurality of inputs coupled to the outputs of a respective one of the wavelength division demultiplexers."

- "29. A protection switching arrangement as claimed in claim 10, further comprising **a spare optical switching matrix** having a plurality of inputs and a plurality of outputs and being operative to switch optical channel signals from any one of its inputs to any one of its outputs, **each one of the second optical protection switches** having a spare output coupled to one of the inputs of the spare optical switching matrix."

It is abundantly clear that Shiragaki, Kashima and Kuroyanagi, whether taken separately or in combination, do not teach or suggest the features of either claim 10 or claim 29.

Specifically, Shiragaki, Kashima and Kuroyanagi, whether taken separately or in combination, provide absolutely no mention or suggestion of "a plurality of second optical protection switches" coupled to a plurality of "optical switching matrices" and to a plurality of "wavelength division demultiplexers", in the manner recited in claim 10. Similarly, the cited references, in isolation or in combination, also do not provide a mention or suggestion of "a spare optical switching matrix" coupled to a plurality of "second optical protection switches" (which, itself, is absolutely not taught or suggested by the references), in the manner recited in claim 29.

For the above additional reasons, it is once again respectfully submitted that claims 10 and 29 are in condition for allowance. Claims 18, 32 and 33 depend either directly or indirectly on claim 10, and are thus once again believed to be in condition for allowance.

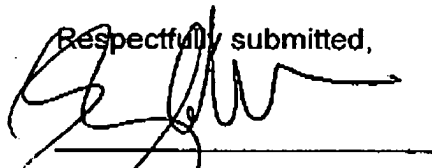
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III. CONCLUSION

In view of the foregoing, the Applicants are of the view that claims 1, 9, 10, 18, 26, 29, 32, 33 and 38-40 are in condition for allowance. Favorable reconsideration is requested. Early allowance of the application is earnestly solicited.

If the claims of the application are not considered to be in full condition for allowance, for any reason, the Applicants respectfully request the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 707.07(j) or in making constructive suggestions pursuant to MPEP 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

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Date: November 26, 2004

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